The Status of Utility Demand-Side Management Activities in South Carolina for 1995

A report to
the South Carolina General Assembly
prepared by
the South Carolina Energy Office
of the State Budget and Control Board
Office of General Services
in cooperation with
the South Carolina Public Service Commission

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INTRODUCTION

This report summarizes demand-side management (DSM) activities for electric and natural gas utilities in South Carolina for 1995. Two basic themes emerge: (1) growth in demand-side management programs is slowing, and new programs are not being implemented; and (2) there is a great deal of variation among the utilities in the degree to which they participate in demand-side activities.

PURPOSE OF REPORT

The purpose of the report is to describe demand-side options for meeting energy needs in South Carolina, with the hope of encouraging further implementation of demand-side management practices. Demand-side management refers to the use of cost-effective conservation, efficiency, and load management in order to reduce the demand for and cost of energy services. Demand-side management is a resource option that complements power supply. It not only saves customers money, but also helps utilities reduce pollution and avoid more costly supply-side investments. Demand-side activities are used to reshape energy use and demand, thus providing an important component of the energy resource mix. These activities are intended not only to delay the expense of power plant construction, but also to reduce air-polluting emissions and expenditures for fuel.

FINDINGS

Submittals were received from 47 of the 50 electric utilities operating in the state, including all major distributors. Data was received from eleven of the 19 natural gas suppliers operating in the state, including all major suppliers.

Electricity

The demand for electricity in South Carolina is projected to grow over 8 percent between 1995 and 2000, or 1.6 percent annually. Utilities can take both supply- and demand-side approaches to meet this growth. There are two basic goals of demand-side activities: reducing the peak demand for electricity; and reducing the overall amount of energy used.

Reductions in Peak Electricity Demand

Statewide peak demand in 1995 was 13,300 MW. Demand-side management reduced peak demand by 5.26 percent, or 700 MW, equivalent to reducing the need for the capacity of two typical coal-fired power plants. This compares to a national average of 4.76 percent. However, while DSM activities are expanding, peak demand is growing faster still. Application of DSM peak reduction principles by the utilities varies markedly; by 2000, Carolina Power & Light (CP&L) and Duke will reduce their peak demand by more than 10 percent through demand-side management, while most other utilities will achieve significantly less.

Reductions in Electricity Consumption

Over 64.7 million MWh of electricity was used in 1995, at an expense to South Carolinians of over $4.5 billion. Demand-side activities reduced this total consumption figure by 0.4 million MWh, equivalent to $28 million. This 0.65 percent savings represents only a third of the national average of 1.91 percent reduction of consumption through demand-side management. While the contribution of demand-side activities to the reduction of electricity consumption is projected to increase substantially by 2000, due to the cumulative effect of existing programs, current projections for that year would represent only about a one percent reduction, far less than the current national average.

Qualified Facilities

Qualified facilities include industrial cogenerators and independent power producers using renewable fuel sources. They currently provide 382 MW of power, meeting 3 percent of system peak demand. Duke Power is projecting the addition of a large cogeneration facility in Cherokee County in 1997. This facility will almost double capacity from qualified facilities in the state.

Retail Wheeling

Utilities were asked their opinion about retail wheeling and deregulation and potential effects on DSM. The response was one of uncertainty.

Natural Gas

There are two categories of demand-side activities for natural gas: (1) load building and fuel substitution programs; and (2) conservation and load management programs. The total number of customers participating in these activities in 1995 was 12,059, out of a total of 338,313 natural gas customers. During 1995, reported reduction in peak demand through demand-side management was only 88 dekatherms (DT), a negligible proportion. Annual consumption was reduced by 17,557 DT, about 0.2 percent. These numbers are small as most activities were focused on load building programs. However, natural gas utilities project that demand-side management activities will grow substantially over the next five years. Utilities are expecting a reduction in the annual peak demand of about one percent of the current peak load by the year 2000.

CONCLUSION

DSM programs cut peak load by 5 percent in 1995, and this percentage is expected to hold steady through the year 2000. Carolina Power & Light and Duke Power are the most active participants in demand-side management, but there is considerable variation among South Carolina utilities in the degree to which they apply demand-side management. Furthermore, few new programs are coming on line, and projections of overall DSM programs and savings have been scaled back from previous years.

Due to the pending restructuring of the power industry, the future of demand-side management is difficult to predict.

INTRODUCTION

This report provides demand-side information submitted by retail distributors of electricity and natural gas in South Carolina, including investor-owned utilities, Santee Cooper, electric cooperatives, and municipalities. The report includes actual data from calendar years 1991 through 1995, and projected data from 1996 through 2000.

Two basic themes emerge: (1) the growth in demand-side management programs is slowing, and new programs are not being implemented; and (2) there is a great deal of variation among the utilities in the degree to which they participate in demand-side activities.

The federal Energy Policy Act of 1992 (EPACT) introduced greater competition in the wholesale power industry while encouraging the use of integrated resource plans (IRPs) for both electric and gas utilities. IRPs are used to evaluate the full range of supply- and demand-side alternatives to provide utility services at the lowest system cost, and EPACT stipulates that utilities must give equal weight to both resource alternatives when formulating IRPs.

The Federal Energy Regulatory Commission (FERC) issued Order 636 in April 1992, which transformed the natural gas industry by unbundling various services. Prior to this, virtually no demand-side activities were pursued with the exception of load building options. As a result of FERC Order 636 and EPACT, the natural gas industry has become more competitive and market-driven, as can be seen by the initiation of new programs that promote conservation and load management. Use of demand-side programs by natural gas utilities is projected to grow substantially over the next five years.

Utilities were afforded an opportunity to comment further on demand-side management programs, particularly with regard to their future feasibility. These comments are found in Appendix J.

PURPOSE OF REPORT

This is the fourth annual report on demand-side activities used by the suppliers of electricity and natural gas throughout South Carolina. This report was prepared by the South Carolina Energy Office in cooperation with the South Carolina Public Service Commission and meets the requirements of the South Carolina Code Section 58-37-30(A) & (B), as enacted by the South Carolina Energy Conservation and Efficiency Act of 1992.

The overall purpose of this report is to describe demand-side alternatives for meeting energy needs in South Carolina, and to present that information to the people of the state, its elected officials and the utilities themselves, with the hope of encouraging further implementation of demand-side management practices.

Demand-side management refers to the use of cost-effective conservation, efficiency, and load management in order to reduce the demand for and cost of energy services. Demand-side management is a resource option that complements power supply. It not only saves customers money, but also helps utilities achieve less pollution and avoid more costly supply-side investments. Demand-side activities are used to reshape energy use and demand, thus providing an important component of the energy resource mix. These activities are intended not only to delay the expense of power plant construction, but also to reduce air-polluting emissions and expenditures for fuel.

Demand-side programs are a clear alternative to supply-side options. For example, a utility may project additional demand of 300 MW. The utility can build a new generating plant (supply-side), or it can fund programs that will encourage customers to save 300 MW of energy (demand-side). The utility must determine which is cheaper, in both economic and environmental costs: building and operating a new plant; or promoting efficiency. Each utility's long-range plan should provide for a mix of both supply-side and demand-side options.

Primarily, the report presents compiled information on the status of demand-side activities throughout the state, as well as near-future projections. This information can be used for the following: assessing alternatives for satisfying the ever-increasing demands for power; discerning long-range air quality options; and statewide energy planning. Purposes of the report are further discussed in Appendix C.

FINDINGS

The retail suppliers of electricity or natural gas are requested annually to submit information on each of their demand-side programs as both qualitative and quantitative data. A format was provided to each electric and natural gas supplier for data submission (see Appendix I for blank format, and for explanation, Appendix D).

Submittals were received from 93 percent of all utilities operating in the state, including three investor-owned electric utilities, Santee Cooper, 20 electric cooperatives and 19 municipalities.

Data was received from eleven of the 19 natural gas suppliers operating in the state, including all four major suppliers. Of the eleven, two reported the existence of programs for residential, commercial and industrial customers, two reported that demand-side programs were scheduled for implementation during 1995, and two reported no plans for the implementation of demand-side programs.

The names of the electricity and natural gas companies submitting data are provided in Appendix B. Further discussion of responses from both electric and natural gas utilities is found in Appendix E.

Electricity

The demand for electricity in South Carolina is projected to grow over 8 percent by 2000, an average of 1.6 percent annually. Electric utilities can take both supply-side and demand-side approaches to meet this growth of demand.

On the supply side, they can increase the supply of electricity in one of three ways: by building new plants; increasing the output, efficiency, and service life of existing plants; or purchasing electricity from other utilities or qualified facilities.

On the demand side, they can modify the demand for electricity through use of various activities designed to cause consumers to change the timing and level of electricity use.

Electric utilities have used demand-side activities for many years in South Carolina. There are two general goals of demand-side activities: (1) reducing the peak demand for electricity; and (2) reducing the overall amount of electricity used. The peak system demand is measured in megawatts (MW) and usually occurs during the late afternoon of summer months in South Carolina. Each distributor is responsible for providing as much power as needed to meet the peak demand on its system. In South Carolina, demand-side activities are reducing both the peak power demand and the total amount of electricity that needs to be generated.

Reductions in Peak Electricity Demand

Figure 1 illustrates the distribution, by utility, of the annual system peak demand for South Carolina in 1995. All municipalities that distribute electricity are grouped together and shown as a single source. Similarly, all electric cooperatives are grouped as a single source. The investor-owned utilities and Santee Cooper are shown separately, as each represents a sizable portion of the distribution of electricity. The sum of these sources is the actual amount of the annual system peak demand for 1995, which was 13,300 MW.

The remaining section of the chart represents the combined effects of all demand-side activities from each distributor in reducing the demand for electricity. In 1995, this amounted to 700 MW, or 5.26 percent of the total peak demand. This compares to the national average of a 4.76 percent reduction of the total peak demand through demand-side management. Had demand-side activities not been in place, distributors of electricity in South Carolina would have been obliged to provide 700 MW of additional electricity during the annual system peak, an amount equivalent to the production of two typical coal-fired plants.

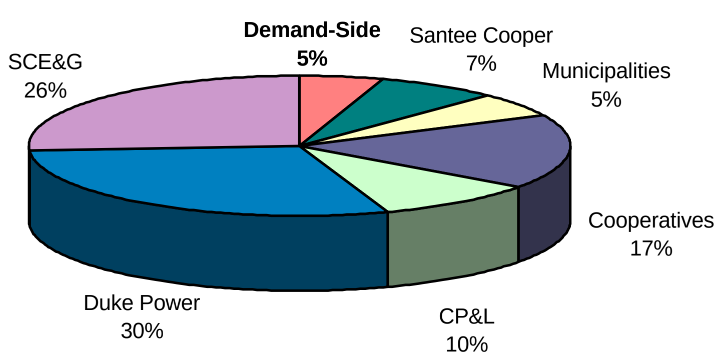

Figure 1. Distribution Sources of Supply to Meet Annual Peak Demand in 1995

Figure 2 shows the growth in peak system demand (in MW) for all utilities, compared to the effects of demand-side activities. Peak growth is calculated against a base year, 1988. Growth in peak demand is a major cause of higher energy bills, due to the expense of building new plants to meet higher demand. By increasing demand-side activities, utilities can reduce the need for new power plants and decrease customers' future bills.

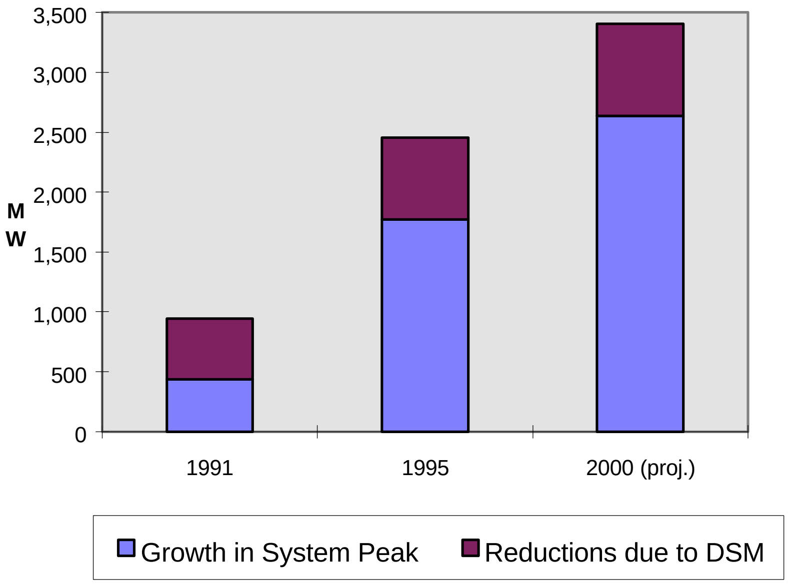

Figure 2. Growth in Peak Demand and Effect of Demand-Side Activities (in MW)

Of the five categories of electric utility DSM programs, three contribute nearly all the energy savings:

- Load management programs will provide 52 percent of the peak demand reductions in 2000.
- Energy efficiency programs, in addition to reducing overall consumption, will account for 27 percent of the total peak demand reduction in 2000.
- Standby generation will account for 18 percent of the total peak demand reduction in 2000, the same percentage as it accounted for in 1995.

The combined effect of these peak-reducing demand-side activities for all utilities is expected to grow 90 MW over the next five years. However, this is due to the growth of existing programs, not the creation of new ones. Moreover, utility projections have been scaled back since last year's DSM report. Further discussion of these categories can be found in Appendix F.

Figure 3 depicts the total amount of peak savings, by distributor, over a ten year period. The chart includes actual data for 1991 to 1995 and projected data for 1996 to 2000. While savings from demand-side management are projected to grow, the rate of growth has slowed dramatically. In fact, programs actually shrank in 1995.

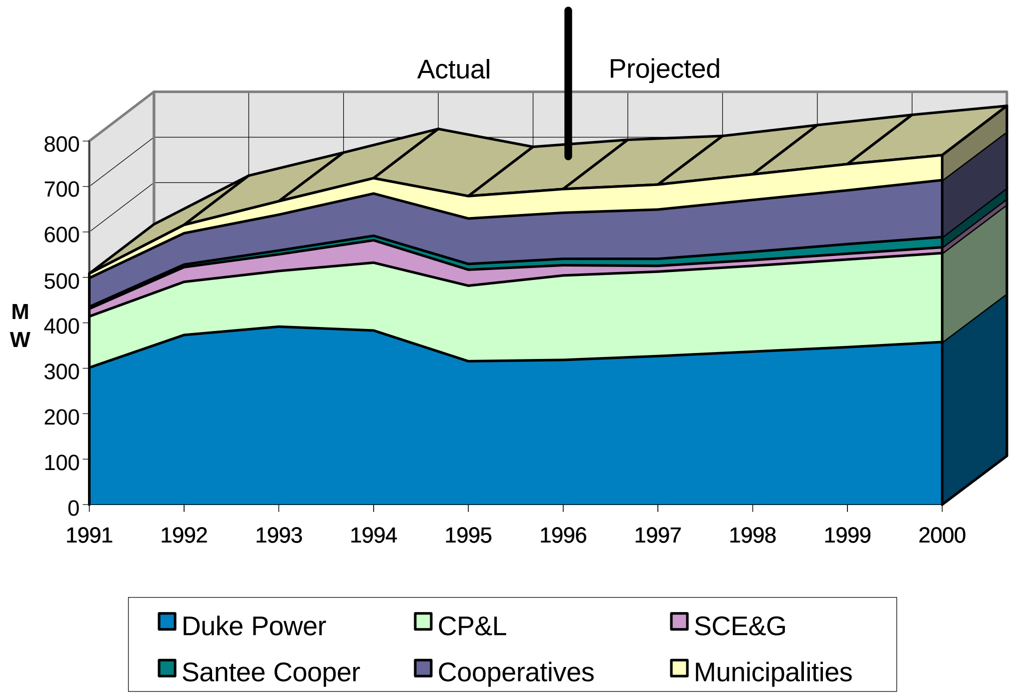

Figure 3. Peak MW Avoided Due to Demand-Side Activities

Moreover, planned future savings are being scaled back. Figure 4 conveys the change in utilities' projections. In the 1993 DSM report, utilities projected total savings from peak would be 1,008.09 MW in 1997. The 1994 report reflected a dramatic cutback in projections: the 1997 projection for savings from peak due to demand-side activities fell to 754.86 MW. The current report shows a further drop-off, to 703.58 MW projected as total savings from peak in 1997, 30 percent less than the projection published in the 1993 report.

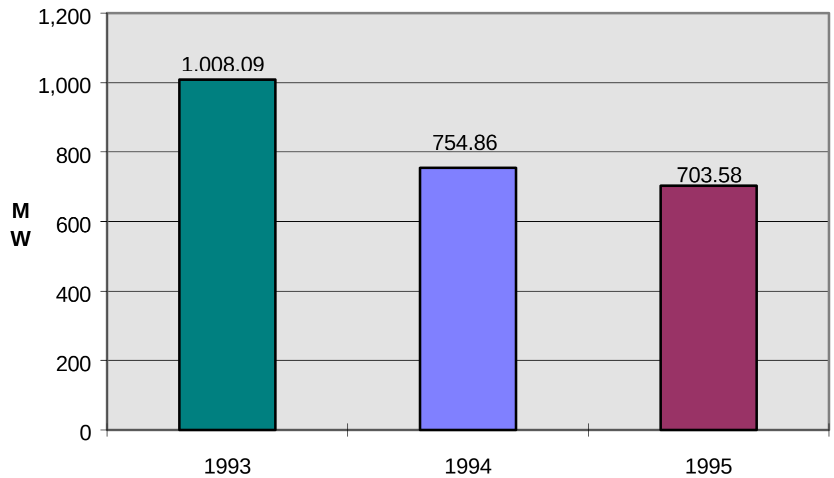

Figure 4. Changes in Projections for 1997 of Total MW Saved from Peak, 1993-1995

In the year since the 1994 DSM Report, projections have shrunk by nine percent. Figure 5 documents the changes among the various utilities' DSM programs between the 1994 and 1995 reports, with reference to projections for 1999. SCE&G and Duke report the greatest changes. Their projections for savings from peak through DSM programs fell 59.7 percent and 20.4 percent, respectively. The municipalities as a group also revised their projections downward, while Santee Cooper, CP&L and the cooperatives increased their projections. Taken as a whole, however, the electric utilities, during a one-year period, cut back their projections for 1999 reductions from peak MW by 8.9 percent.

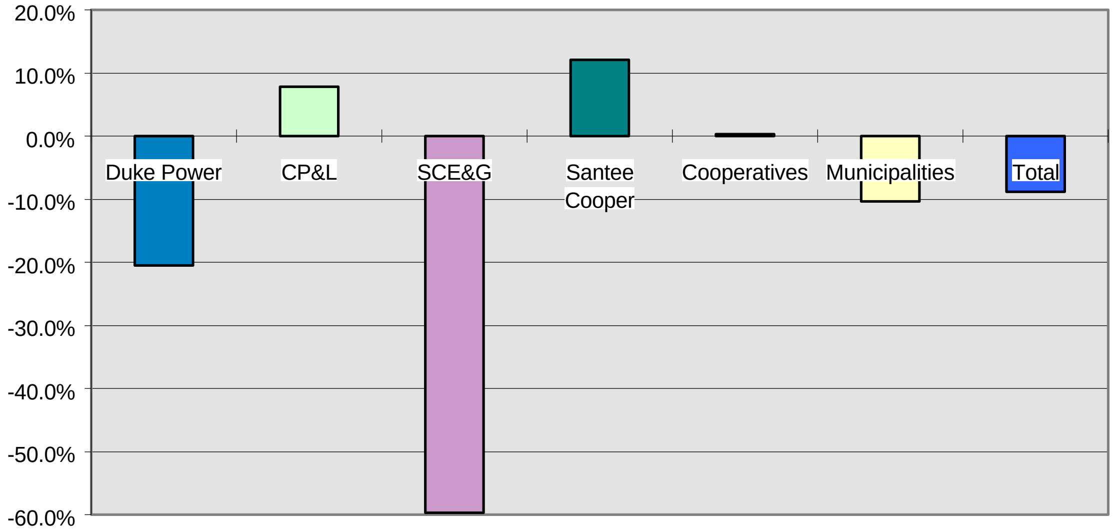

Figure 5. Change in Projections for 1999 Savings from Peak Through DSM, 1994-95

Figure 6 depicts the percentage of peak demand projected to be accounted for by demand-side management programs for the year 2000 for the investor-owned utilities, Santee Cooper, the municipalities, and the electric cooperatives. CP&L is slated to reduce its peak demand by over 14 percent through demand-side activities, and Duke projects an 11 percent peak reduction.

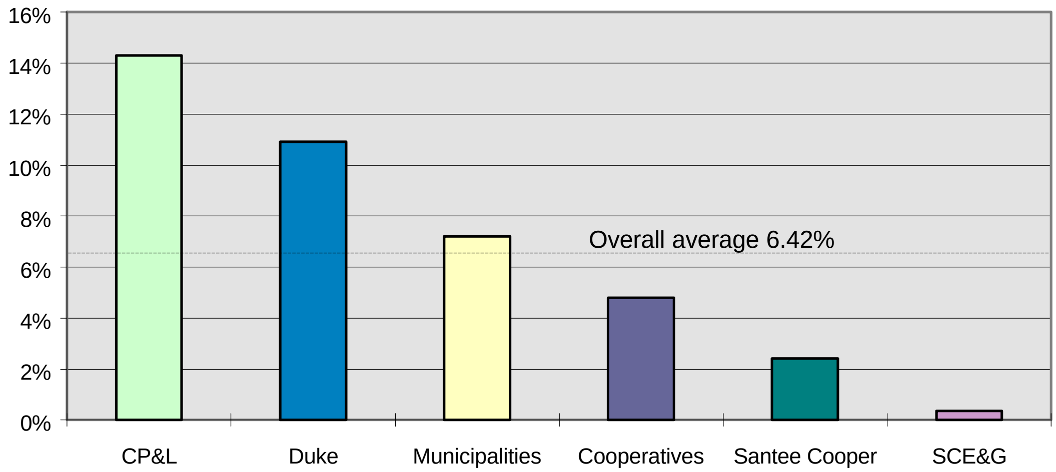

Figure 6. DSM as Percentage of Peak Demand, 2000 (Projected)

The municipalities report great variation in their demand-side management programs. Municipalities projecting better than average peak reductions for the year 2000 from demand-side programs are as follows: Gaffney, 26.4 percent savings from peak demand; Rock Hill, 10.9 percent; Easley, 9.7 percent; Greenwood, 8.8 percent; Bennettsville, 7.9 percent; and Greer, 7.4 percent. Most of these savings come through peak shaving and standby generation programs maintained by the municipalities themselves, as opposed to customer-based programs. The other 13 municipalities responding project below average results for 2000; many report no demand-side activities whatsoever.

There is also considerable variation among the electric cooperatives, but less than among the municipalities. Outstanding demand-side management programs include those offered by the following: the Saluda River Electric Cooperative system (composed of five distribution cooperatives: Blue Ridge, Broad River, Laurens, Little River, and York), projecting peak savings of 6.5 percent in the year 2000; and Berkeley Electric Cooperative, 6.4 percent. The other 14 electric cooperatives project below average results for peak demand reduction in 2000.

Complete details are in Appendix H.

Reductions in Electricity Consumption

The second goal of demand-side activities is to increase efficiency by reducing the overall amount of energy used over time (as opposed to the peak amount used at a given instant). This energy is measured in MWh and, for the purposes of this report, represents annual use. Whereas lowering of peak demand reduces the need for additional power plants, reducing the amount of energy used conserves fuel resources, reduces consumers' energy bills and reduces harmful emissions into the atmosphere.

Figure 7 shows the proportions of electricity distributed by utilities during 1995 along with the portion of consumption that was avoided due to the combined effect of all demand-side activities. Over 64.7 million MWh of electricity was used in 1995, at a cost to consumers of about $4.529 billion. The combined effects of all demand-side activities was 0.4 million MWh saved, or a 0.65 percent reduction in the consumption of electricity for that year. Although this represents savings to consumers of about $28 million each year, the 0.65 percent South Carolina reduction in consumption was only one-third of the national average of a 1.91 percent reduction in energy consumption from utility-sponsored demand-side activities. (Appendix F provides a description of the various kinds of demand-side management programs implemented by South Carolina electric utilities.)

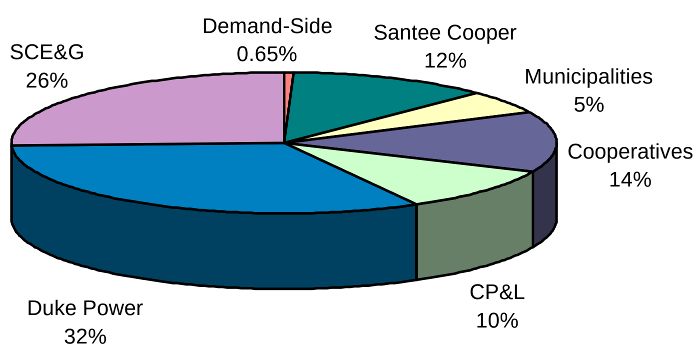

Figure 7. Distribution Sources of Supply for Electricity Consumption in 1995

Although the average unit residential prices for South Carolina electric utilities is better than the average rates for 28 other states, South Carolina residential consumers rank eighth in the nation in the per household amount of money spent on electricity (*Statistical Yearbook of the Electric Utility Industry, 1995,* Edison Electric Institute). The high expenditures on electricity are the result of high consumption levels, not high rates. Demand-side management conservation programs reduce consumption levels. Because of South Carolina's high electricity use and high expenditures, increased energy conservation through cost-effective demand-side management programs has considerable potential for saving the state's consumers many more millions of dollars.

Figure 8 compares the growth in total consumption with savings due to demand-side activities. Consumption growth is compared to a base year of 1988. Utilities can reduce the rise in customers' bills by expanding demand-side activities.

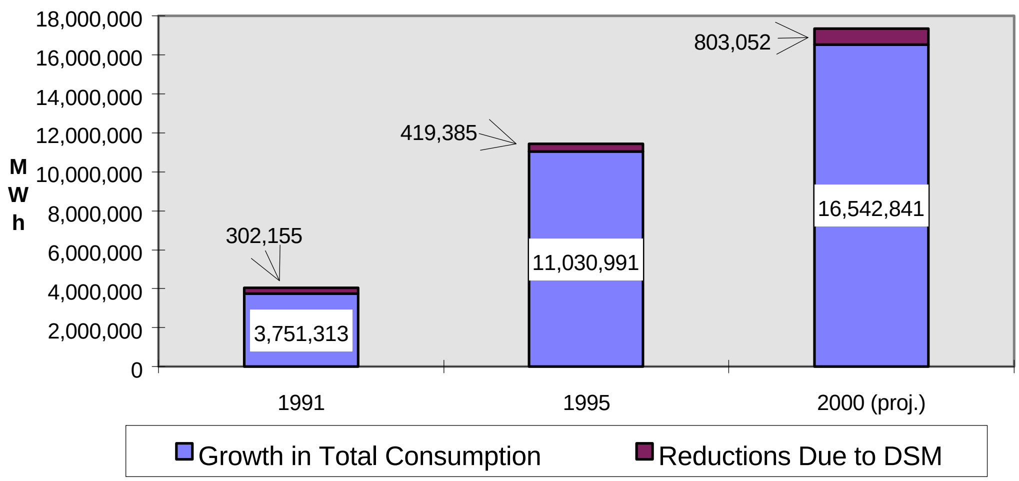

Figure 8. Power Supply Growth vs. DSM Savings (MWh)

Figure 9 depicts total electricity demand avoided due to DSM activities over a ten-year period. Their cumulative effect is expected to increase 90 percent over the next five years. Residential energy efficiency programs will account for the great majority of these energy savings over that period.

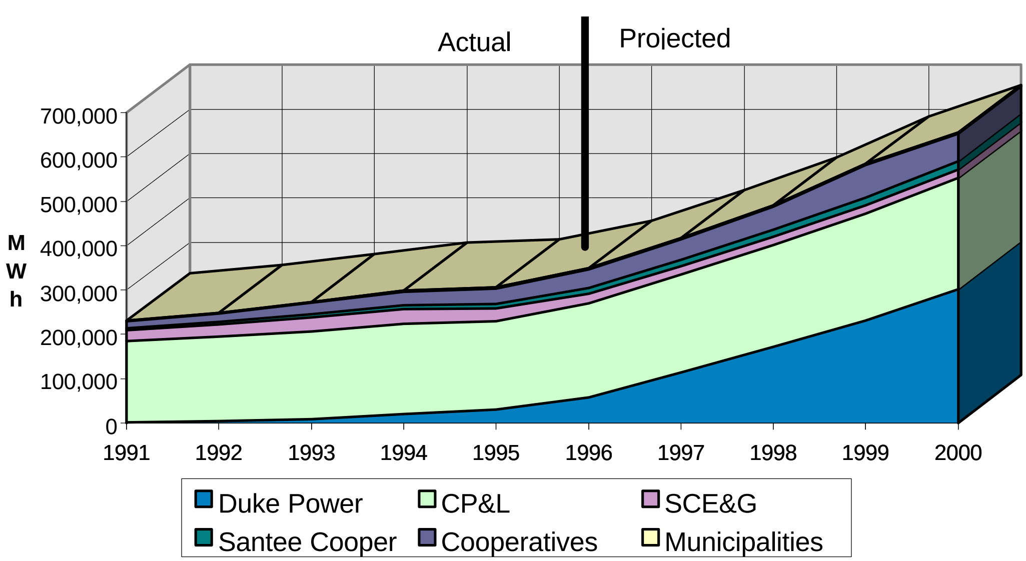

Figure 9. Annual MWh Avoided Due to Demand-Side Activities

Comparable to Figure 6, Figure 10 depicts energy savings in MWh from demand-side activities as a percentage of total power generation, as projected for the year 2000. CP&L projects that by 2000 demand-side activities will reduce its system's total energy consumption by 3.4 percent, while Duke projects that its total consumption will be reduced by 1.3 percent.

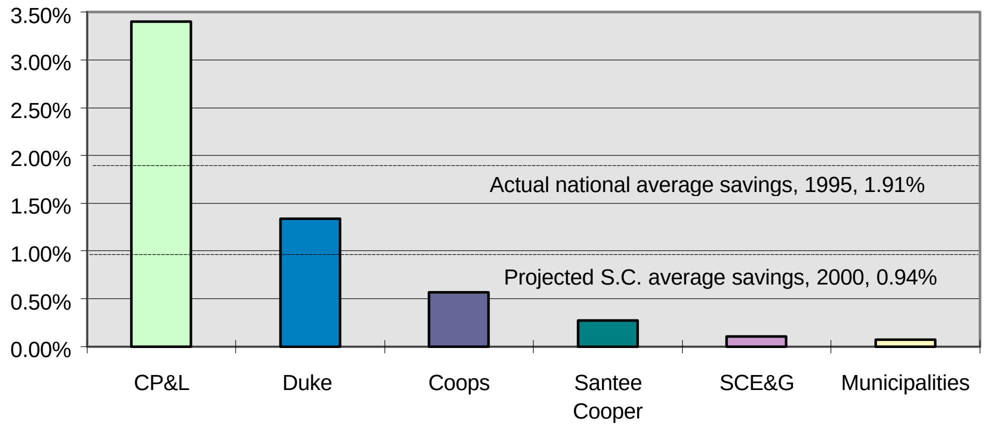

Figure 10. Energy Savings from DSM as Percentage of Total Generation, 2000 (Proj.)

Electric cooperatives projecting above average energy savings from demand-side activities for the year 2000 include: Horry, 1.3 percent; Mid-Carolina, 1.1 percent; and Berkeley, 1 percent. The remaining 13 electric cooperatives project below average results for energy savings from demand-side activities for 2000.

Demand-side programs offered by the municipalities place little emphasis on overall energy savings. Only Gaffney (0.3 percent savings projected for 2000) and Rock Hill (0.2 percent) project significant activity.

Complete details are in Appendix H.

Qualified Facilities

The federal Public Utilities Regulatory Policies Act of 1978 (PURPA) allows end users who need to generate power for their facilities to make any excess power available to the electric utilities supplying those users. PURPA also allows private companies to generate and to supply electricity to public utilities if that power is generated using renewable energy resources. A Qualified Facility (QF), as defined by PURPA, includes industrial cogeneration facilities and such sources as independent power producers using renewable fuel sources, such as wood wastes, incinerated municipal solid waste and small-scale hydro-electricity. Qualified facilities reduce the need for new power plants just as load management does, by reducing the demand on utilities' systems at peak times.

Figure 11 compares total displacement from qualified facilities in South Carolina against purchases from qualified facilities, total peak, and total peak MW saved through demand-side activities. Electricity from qualified facilities is classified into two categories: purchase, meaning the utilities purchase the power generated; and displace, meaning that the power is used by the facility itself, which would otherwise be using power from the utility's grid. Displacement from qualified facilities, in other words, is analogous to the other demand-side activities detailed in this report, in that it contributes to reducing overall system peak. Purchase is a direct, non-utility addition to total system peak capacity. Therefore, if the DSM, QF displacement and QF purchase bands in Figure 11 were larger, the need for additional power plants in the future would be less.

A listing of qualified facilities and their generating capacities is included in Appendix G.

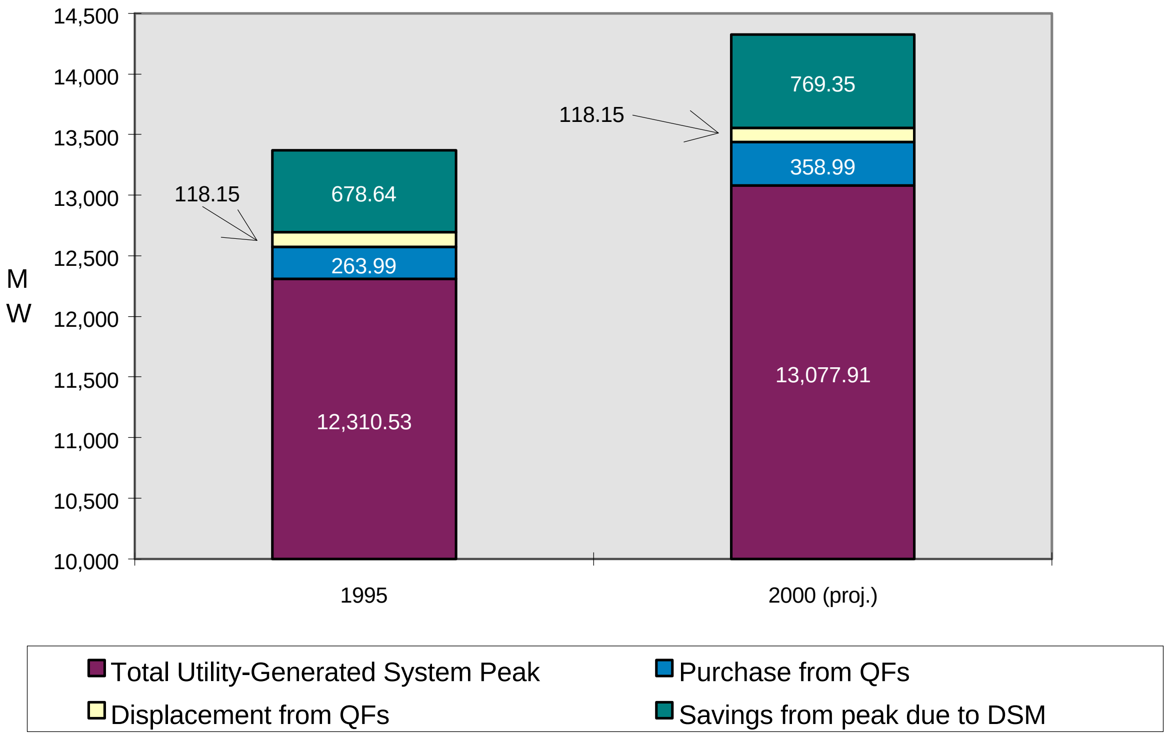

Figure 11. Total Capacity from Qualified Facilities and DSM vs. Total Peak

Duke Power projects the addition of a large facility in Cherokee County in 1998. This will increase Duke's annual energy from qualified producers ten times by 1999. Figure 12 shows the annual contribution of energy from both cogeneration facilities and renewable energy technologies for ten years, including actual data from 1991 to 1995 and projected data from 1996 to 2000. This includes energy purchased by utilities, but not energy that was displaced for internal consumption. As can be seen on the graph, the energy produced from these facilities has grown 52 percent over the last four years, and because of additions to the Duke Power system, is projected to increase an additional 78 percent over the next five years.

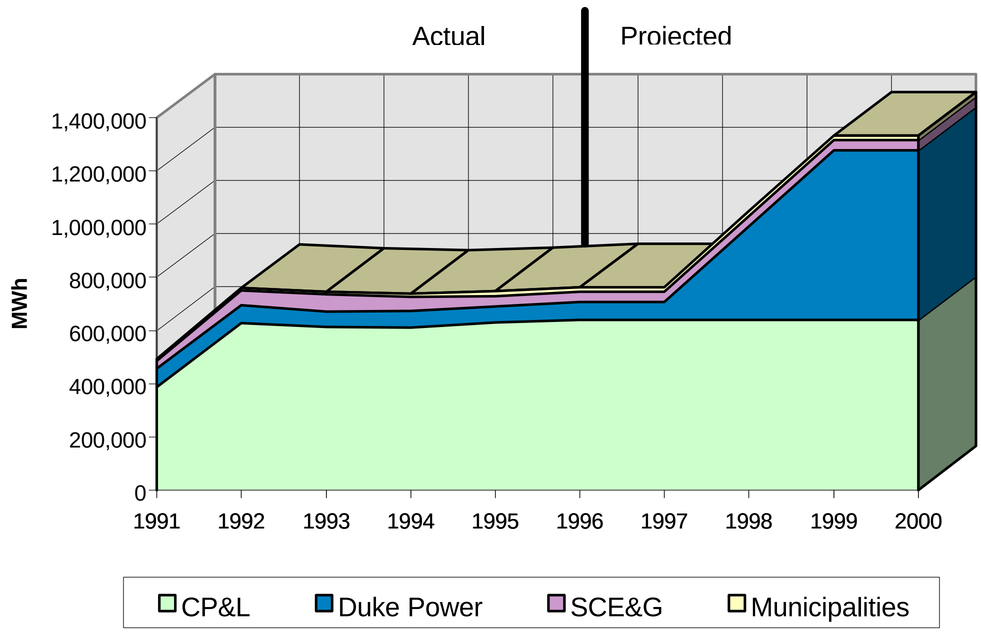

Figure 12. Annual Energy from Qualified Facilities

Retail Wheeling Impact

The Energy Policy Act of 1992 (EPACT) introduced additional competition into the electric industry in several ways. EPACT increased competition in the area of generation by establishing exempt wholesale generators (EWGs). It also resulted in issuance of FERC Order 888 in 1996, which requires transmission utilities to establish open access tariffs, thus requiring utilities to transmit, or wheel, power for third parties to wholesale customers.

Although EPACT does not mandate transmission access for retail customers, states can authorize such access to and for retail electric customers. South Carolina has not yet authorized retail access.

The South Carolina Energy Office asked utilities to comment on how retail wheeling might affect future demand-side management programs. Generally, the response was one of uncertainty.

Natural Gas

The basic purpose of demand-side activities is to change energy-use decisions of customers in ways that are beneficial to both the customers and to the utility itself. Whereas electric utilities must meet their load instantaneously, natural gas suppliers have the ability to store gas and use interruptible contracts to maintain reliability. There are two categories of demand-side activities for natural gas: (1) load building and fuel substitution programs; and (2) conservation and load management programs.

Load building and fuel substitution programs are designed to entice consumers to use natural gas instead of other energy sources. There are no avoided cost savings, but the increase in gas sales allows the fixed costs of the distribution system to be spread over a larger gas volume, thus lowering gas rates. Although load building encourages consumption and thus does not meet most standard definitions of demand-side management, these programs qualify as demand-side activities under the South Carolina Public Service Commission's statement of objectives for integrated resource planning.

Conservation and load management programs encourage the consumer to use energy more efficiently. The major targeted groups are newly constructed residences, existing residences, commercial buildings, and industrial facilities. These programs promote the use of more effective building envelopes and high efficiency appliances and climate conditioning equipment.

The total number of customers participating in these activities in 1995 was 12,059, out of a total of 338,313 natural gas customers. During 1995, reported reduction in peak demand through demand-side management was only 88 dekatherms (DT), a negligible proportion. Annual consumption was reduced by 17,557 DT, or about 2/10 of a percentage point. These numbers are small as most activities were focused on load building programs, which increase consumption.

However, natural gas utilities project that load management demand-side management activities will grow substantially over the next five years. Utilities are expecting a reduction in the annual peak demand of 5,892 dekatherms by 2000, which represents one percent of the current peak load, although the annual consumption of natural gas is expected to increase. Activities in the residential sector contribute half of this peak reduction, and the commercial and industrial sectors make up the other half. The majority of this peak demand reduction will be achieved through the use of energy efficient equipment. Current projections indicate that the number of customers participating in these programs will be lower in the year 2000 than it is today, but this is primarily because SCE&G projections for customer participation only run to 1998. (SCE&G did not report energy savings from its programs.) Figure 13 depicts projected savings from natural gas DSM programs for the two utilities that provided projected savings.

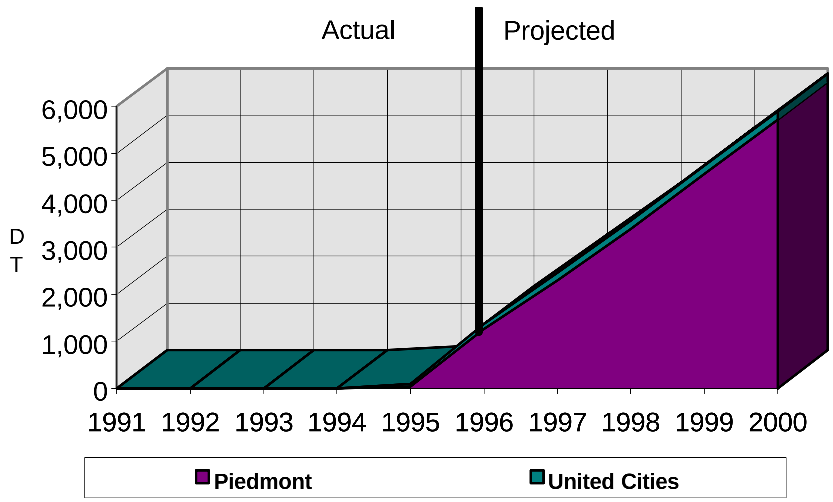

Figure 13. Peak DT Avoided Due to Demand-Side Activities

The compiled numerical data for natural gas DSM programs is contained in Appendix H. Because these activities were not reported as separate categories by all of the suppliers, the results have been aggregated for purposes of this report.

CONCLUSION

Electric utilities continually evaluate demand-side programs and create, modify, or eliminate them as required to meet generation and transmission system needs, revenue needs, and customer needs. Demand-side programs, which were used to shave five percent off peak demand during 1995 and reduce consumption by 0.67 percent, are projected to maintain the current level of savings over the next five years. However, there is considerable variety among the utilities in the application of demand-side management. Furthermore, few new programs are coming on-line, and some existing programs are being eliminated. Projections are being scaled back from those reported previously.

The future of electric demand-side programs cannot be predicted with certainty due to the pending restructuring of the electric industry. Demand-side programs help reduce harmful emissions. At the same time, they cut electric bills and improve economic productivity. However, investor-owned electric utilities are seriously questioning the future of conservation and load management programs. Programs that may make sense in a regulated market with government-guaranteed customer bases may not make as much sense in a deregulated market, at least in terms of payoff for stockholders. If a utility has no guarantee of continuing to be able to serve a customer in the future, it clearly has less incentive to spend money now to help that customer reduce its energy needs in the future.

In a highly competitive electricity marketplace, growth in energy sales will necessarily take precedence over the long-range energy efficiency programs in service areas, since there may be no service areas. Similar to the deregulation situation of the telecommunications industry, consumers may be encouraged to use more, not less, electricity. Pricewise, there will be winners and losers; large industrial users will clearly be winners, but the nature of the wins and losses for other classes of consumers (e.g., residential users, rural and small-town consumers, low-income citizens) is yet to be determined.

The distinction between electric rates, as measured in cents per kWh, and electric bills, as measured in rates times number of kWh consumed, is important. South Carolinians have somewhat low average rates and somewhat high average bills. In a competitive market, utilities may focus on keeping rates low, in order to attract customers. In order to maximize profits, they will encourage high sales volumes. Customers, on the other hand, will be impacted by their bills; the greatest determinant of bills is volume of use, not rates. The best way to keep bills down is through conservation and efficiency.

A dilemma lies in the concept of “cost-effectiveness” demand-side management. A program which is cost-effective for a consumer is one which saves the consumer more money through reduction in consumption than it adds through increase in unit price. Thus, a cost-effective conservation program can, by increasing efficiency, raise unit costs but cut utility bills.

Cost-effective for a utility stockholder, on the other hand, means that the program adds more to the utility’s profit than it adds to the utility’s costs. Thus, in a competitive situation, the cost-benefit ratio for utility stockholders is quite different from the cost-benefit ratio for consumers. In a system of regulated monopolies, however, an enlightened and meticulous regulatory policy can bring together the cost-benefit scenarios into a win-win situation for all parties.

Also yet to be determined are environmental impacts. Unlike the telecommunications industry, the electricity industry builds power plants and consumes fossil and nuclear fuel. It is quite possible that increased emphasis on greater sales over total territorial customer service will result in greater adverse environmental impacts associated with power plant construction and electricity generation, including impacts on air quality, water quality and natural resource preservation. It may be also be possible, however, to guide deregulation in such a way as to minimize adverse environmental impacts.

In any case, electric utilities cite the prospect of future deregulation as a reason for cutting back on future activities. It remains to be seen whether conservation and load management programs that are cost-effective in a regulated market structure can be modified to continue to prosper in market structures of the future. New technology which allows such programs as time-of-day pricing for even the smallest customers, along with precise knowledge of the nature of generation sources at any given time, may allow citizens to reap the benefits of competition without sacrificing the economic and environmental benefits of conservation and efficiency.

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APPENDIX A
Definitions

Cogeneration systems produce both electricity and process steam or heat from a single fuel source. Cogeneration works best in industrial operations that use significant amounts of both electricity and process steam or heat on a relatively stable day-to-day basis.

Demand-side management (DSM) refers to the use of cost-effective conservation, efficiency, and load management in order to reduce the demand for and cost of energy services. Demand-side management is a resource option that complements power supply. It not only saves the customer money, but also helps a utility achieve less pollution and avoid more costly supply-side investments.

Dekatherm (DT) is a unit of measurement of natural gas, equal to 1,000,000 BTUs, or 293 kWh.

Kilowatt (kW) is a measure of real power, equal to 1,000 Watts. A common equivalent is that 3/4 kW is equal to one horsepower. Higher quantities are expressed in megawatts (MW), equal to one million watts. A typical coal-fired electric plant produces about 300 MW.

Kilowatt-hour (kWh) is a unit of electrical measurement indicating the expenditure of 1,000 watts for one hour. Higher quantities are expressed in megawatt-hours, or the expenditure of one million watts for one hour.

Load management shifts demand for power from periods of peak demand to periods of less demand. Although this process may more efficiently utilize generation and transmission systems, and thus reduce the need for construction of generating and transmission facilities, it does not necessarily decrease the overall use of energy.

A **Qualified Facility** (QF) is defined by the Public Utilities Regulatory Policies Act of 1978 and includes industrial cogeneration facilities and such sources as independent power producers using renewable fuel sources, such as wood wastes, incinerated municipal solid waste and small-scale hydro-electricity.

When **retail wheeling** occurs, end users of electricity may choose from among several power producers regardless of geographical location, and have the purchased power “wheeled” to them through existing transmission and distribution lines owned by utilities which may be different from the seller of the purchased power. Current ideas for restructuring the electric industry include proposals to permit retail wheeling.

APPENDIX B
Utility Participation in Survey

Electric Utilities

Central Electric Power Cooperative, members:
Aiken Electric Cooperative
Berkeley Electric Cooperative
Black River Electric Cooperative
Coastal Electric Cooperative
Edisto Electric Cooperative
Fairfield Electric Cooperative
Horry Electric Cooperative
Lynches River Electric Cooperative
Marlboro Electric Cooperative
Mid-Carolina Electric Cooperative
Newberry Electric Cooperative
Palmetto Electric Cooperative
Pee Dee Electric Cooperative
Santee Electric Cooperative
Tri-County Electric Cooperative
Saluda River Electric Cooperative, 5 members:
- Blue Ridge Electric Cooperative
- Broad River Electric Cooperative
- Laurens Electric Cooperative
- Little River Electric Cooperative
- York Electric Cooperative

Bamberg Board of Public Works
City of Bennettsville
City of Georgetown
Town of Due West
Greenwood Commission of Public Works
Orangeburg Department of Public Utilities
Town of Prosperity
Seneca Light and Water Plant
Town of Winnsboro
Piedmont Municipal Power Authority
- City of Abbeville
- Clinton Public Works
- Easley Combined Utility System
- Gaffney Board of Public Works
- Greer Commission of Public Works
- Laurens Comm. of Public Works
- City of Newberry
- City of Rock Hill
- City of Union
- Westminster Comm. of Public Works

Carolina Power & Light Company
Duke Power Company
Lockhart Power Company
South Carolina Electric & Gas Company
Santee Cooper (South Carolina Public Service Authority)

Natural Gas Utilities

Chester County Natural Gas Authority
Fort Hill Natural Gas Authority
Lancaster County Natural Gas Authority
York County Natural Gas Authority
Bamberg Board of Public Works
City of Bennettsville
Laurens Commission of Public Works
Piedmont Natural Gas Company
South Carolina Electric & Gas Company
South Carolina Pipeline
United Cities Gas Company

Not Responding

City of Camden
City of Fountain Inn
City of Blacksburg

APPENDIX C

Purposes of the Report, and Statutory Requirements

The overall purpose of this report is to describe alternative ways to manage the growth in energy demand in South Carolina, and to present that information to the people of the state, its elected officials and the utilities themselves.

Its second purpose is to stimulate an improved interest in pursuing demand-side activities wherever economically and environmentally prudent [S.C. Code, Section 48-52-210(B)(3)]. By increasing awareness about demand-side activities statewide, the report is intended to lead to expansion of these activities, and to lower energy use overall.

The third purpose of this report is to encourage utilities to maximize the use of cost-effective demand-side options in meeting the future energy needs of the citizens of South Carolina [S.C. Code, Section 48-52-420(5)].

There are several specific objectives that fulfill the stated purposes of this report:

(1) To report the past, on-going and projected status of demand-side activities and purchase of power from qualified facilities [S.C. Code, Section 58-37-30(B)];

(2) To report the proportion of energy generation that is avoided by the use of demand-side activities in South Carolina;

(3) To report the numerical trends of the effects of demand-side activities.

These objectives are met in such a way as to minimize duplication of information reported by the retail suppliers of electricity and natural gas, appropriately using information already reported to other governmental entities.

APPENDIX D

Description of Data Requested from Utilities

Qualitative Data

Utilities were asked to discuss any changes in their demand-side management programs since the report on 1994 activities, and on the possible effects of retail wheeling. When retail wheeling occurs, end users of electricity may choose from among several power producers regardless of geographical location, and have the purchased power “wheeled” to them through existing transmission and distribution lines owned by utilities which may be different from the seller of the purchased power. Current proposals to restructure the electric industry include calls to permit retail wheeling.

Quantitative Data

Two basic types of numerical data are provided: specific data on each demand-side activity and data on each supplier's system as a whole. This combination of data allows comparisons of the effect of demand-side activities to total system loads. The data describes energy used by retail customers, but not wholesale customers. This procedure is necessary to avoid double counting data when combined on a statewide basis.

Descriptions of the numerical data requested from suppliers of electricity are provided below. Descriptions for suppliers of natural gas closely follow the same structure, except for the units of data (i.e., dekatherms). The item numbers below correspond to the item numbers on Data Forms 1 and 2 (see Appendix I).

Data Requested For Each Demand-Side Activity

(1) <u>Total kW Saved (or avoided) from Annual Peak for this Demand-Side Activity</u>

This item requests the amount of kW saved by lowering the highest peak demand experienced during each calendar year through this demand-side activity. The sum of these values provides the total amount of generating capacity that was not needed due to the beneficial effects of demand-side activities.

(2) <u>Total Annual kWh Saved (or avoided) for this Demand-Side Activity</u>

This value represents the amount of energy in kWh saved over a calendar year from each demand-side activity. The sum of these values provides the total amount of annual generation that was avoided because of the beneficial effects of demand-side activities.

(3) <u>Proportion of Total Customers in Class for Whom this Demand-Side Activity Is Available</u>

This item identifies the percentage of retail customers in a particular class to whom a specific demand-side activity is available.

(4) <u>The Number of Customers Participating in this Demand-Side Activity</u>

This item specifically refers to the number of customers participating in this demand-side activity at or nearest the time of the annual peak demand.

(10) <u>Direct Utility Program Costs for this Demand-Side Activity</u>

This year, for the first time, an attempt was made to assess dollar expenditures by utilities on demand-side management programs. Problems that arose with this attempt will be discussed below under *(11)*.

Data Requested For Each Supplier's System as a Whole

(5) <u>Annual Peak System Demand in kW</u>

This item requests the total amount of retail energy demand in kW during the highest annual peak demand during each calendar year.

(6) <u>Total Annual System kWh Sales</u>

This value shows the total amount of annual generation in kWh that was used by retail customers.

(7) <u>Total Miles of Distribution Line</u>

This provides a measure of the relative size of the distribution system.

(8) <u>Total Number of Customers (all classes)</u>

(9) <u>Total Generation (kWh) Supplied from Qualified Producers or Avoided Due to Their Generation.</u>

This item is necessary to determine the contribution of total generation supplied from these producers. A listing showing the identity and generating capacity of each qualified producer on the supplier's system is necessary to track changes and assess the potential of this energy source. Qualified producers are those, such as cogeneration facilities, from which the utilities are required to purchase power under the Public Utility Regulatory Policies Act of 1978 (PURPA). Cogeneration systems produce both electricity and process steam or heat, from a single fuel source. Cogeneration works best in industrial operations that use significant amounts of both electricity and process steam or heat on a relatively stable day-to-day basis.

(11) <u>Total Program Costs, Including Direct and Indirect Utility Costs, and Nonutility Costs ($1,000s)</u>

This item, along with item *(10)*, was included in the survey for the first time this year. Because of data problems, these items failed to yield any useful information.

APPENDIX E

Description of Utility Responses

This report addresses reported demand-side activities in South Carolina only. However, two investor-owned electric utilities and one investor-owned natural gas utility also supply energy to customers outside of the state. Because demand-side data is collected on a system-wide basis, the percentage of demand-side activities for South Carolina was estimated. Carolina Power & Light Company applied a correction factor for each program based on historic progress in recent years. The data submitted by Duke Power Company was allocated on the basis of South Carolina retail demand as a percentage of total retail demand reflected in a recent jurisdictional study. Similarly, Piedmont Natural Gas, which supplies natural gas both in and outside of South Carolina, estimated demand-side data specific to the state.

Each group reported demand-side activities in various categories and customer classes. Some demand-side activities, such as load management programs, do not appreciably reduce the use of energy. Load management aims to shift the demand for power to periods of less demand. Although this may more efficiently utilize generation and transmission systems and thus reduce the need for construction of generating and transmission facilities, it does not necessarily decrease the overall use of energy. This report considers the energy values reported for each demand-side activity to be net values, thus reflecting the combined effect of decreases and increases in energy use from those activities that are determined to use more energy during the off-peak periods.

Accurately measuring the effect of demand-side activities is difficult because many variables can change the use of energy over a period of time. The measurement must determine the amount of energy that would have been used had the demand-side activity not been in effect. Sorting out which changes were attributable to demand-side activities and which were the result of other factors is not an exact process. The industry continues to research and to improve the estimates in order to enhance the reliability of future determinations of the impact of demand-side activities.

For example, Duke Power reports DSM activities differently from other utilities operating in South Carolina. Duke does not calculate accumulated energy efficiency savings. Savings from DSM for a given year are incorporated into the system peak and total energy usage estimates for the next year. What this means is that Duke's reported DSM activity tends to fluctuate more than those of the other utilities. With regard to Figure 9, Duke's reporting on projected MWh saved was particularly open to interpretation. Read one way, the figures showed that the DSM program at Duke will save a greater proportion of total energy usage than it will take off of peak demand, which is unlikely given that DSM is mainly aimed at peak demand. Read the other way, however, the figures would show Duke's DSM programs resulting in strongly *increased* energy usage, which was thought to be even less likely. This report uses the former interpretation.

Of those natural gas utilities that indicated they had current or projected demand-side activities, the data was reported for various categories and customer classes. Load building and fuel substitution programs develop new sales, allowing fixed costs to be spread over larger gas volumes, thereby lowering costs to current customers. The conservation and load management programs reduce peak demand as well as the consumption of natural gas through the installation of high-efficiency appliances and weatherization improvements.

APPENDIX F

Categories of Electricity Demand-Side Management Programs

There are several categories of demand-side activities, each of which has its own effect upon the daily and seasonal electrical system load profile (the graph of electricity used versus elapsed time). The compiled numerical data for each of the categories described below is contained in Appendix H. Each supplier of electricity might emphasize a different objective of demand-side management in order to respond best to the needs of their particular customers and system demands.

Conservation

Conservation programs are designed to entice consumers to use less electricity through changes in work and living habits, thereby reducing their need for electricity. Included in this category are public education and awareness programs that promote energy-reducing methods such as conservative thermostat settings, turning off appliances when not in use, and restricting hot water flow in shower nozzles.

It is difficult to quantify the results of any one program, but most electric suppliers continue to conduct energy awareness advertising campaigns, demonstrations, and seminars for various classes of customers.

Energy Efficiency

Energy efficiency programs reduce energy consumption by encouraging consumers to use energy more efficiently. There are many programs available, and each program is intended for a specific group of electricity users. Some of the targeted groups are newly built residences, existing residences, industry, commercial buildings, and agricultural applications. These programs promote the use of more effective building insulation, high efficiency industrial equipment, high efficiency appliances and air conditioning equipment, and high efficiency lighting. Incentives consist of more favorable rate schedules, cash rebates, low interest loans, and technical assistance. The specific details of the programs vary between suppliers and continue to be modified as needed. These programs are available to most customers and for most classes of customers.

Over 137,000 customers participated in these activities in 1995, resulting in reductions of 126.551 MW of peak demand and over 400,000 MWh in energy consumption. Programs in the residential sector account for over 70 percent of these reductions (76 percent and 72 percent, respectively). Also, almost 70 percent of the peak demand reductions in energy efficiency activities were the result of programs implemented by the electric cooperatives and Carolina Power and Light Company (CP&L).

Load Management

Demand-side activities in this category reduce the instantaneous demand for electricity (MW) by limiting or discouraging use during periods of high demand. For many reasons, it typically costs more to supply power during peak periods. For example, some older, less efficient plants are only used to meet peak hour demand. Furthermore, other newer facilities are also only brought online during peak hour because they use more expensive fuel (e.g., natural gas or fuel oil). Therefore, transferring the use of energy to periods of lower demand allows the energy to be generated and distributed using more efficient, base-load generating plants. Typical load management activities include allowing direct, remote control of air conditioners and water heaters, interruptible rate schedules for large customers, thermal energy storage systems using off-peak power, and time-of-use rates. These programs are commonly available to most electricity customers in South Carolina and for most classes of customers.

Over 200,000 customers participated in these activities in 1995, resulting in a reduction of the peak demand of 412.169 MW and a decrease in consumption of over ten thousand MWh. The residential sector accounts for about half of the demand avoidance, as do the commercial and industrial sectors combined. Load management programs used by Duke Power Company accounted for 70 percent of all peak demand reductions in this category.

<u>*Other Activities*</u>

Standby Generator Programs -

Standby generation programs provide incentives for customers owning standby generators to utilize them during periods of high demand, thereby reducing the system peak demand. This is a generation displacement program similar to cogeneration, although this category is not a qualified source as defined by the Public Utilities Regulatory Policies Act of 1978. The requirements for these programs vary, but usually there is a payment from the electric company for the amount of capacity that is displaced by the generator as well as a fuel supplement payment based on kWh. Most suppliers require a minimum size generator in order to participate in the program as well as an agreement regarding the operation of the generator.

There were 10,453 customers using standby generation in 1995, resulting in a peak demand reduction of 123.038 MW, and energy use reduction of 921.653 MWh. The standby generator program offered by CP&L provided over 75 percent of the peak demand reductions from this activity in 1995**.**

Voltage Reduction -

Voltage reduction programs reduce the supplied voltage of electricity to all customers, usually between two and five percent. Lowering the supplied voltage has the overall effect of reducing the demand for electricity. There is some controversy concerning the effects of this practice, and, as a result, it is used primarily as a last resort before interrupting the supply of electricity.

Some municipalities employ this practice for reducing the load during critical periods, thereby reducing the peak demand and energy consumption for all customers in each sector. This resulted in a 16.884 MW peak demand and 682.600 MWh annual consumption reduction in 1995.

APPENDIX G

Listing of Electricity Qualified Facilities

Utility	Plant Owner	Location	Fuel Type	Capacity (MW)	Purchase/ Displace
CP&L	Stone Container	Florence	wood chip	41.9	Purchase
CP&L	Stone Container	Florence	wood chip	26.1	Displace
CP&L	LA-Z-Boy Chair	Florence	wood	0.5	Displace
CP&L	DuPont Chemical	Camden	coal	29.0	Displace
CP&L	Sonoco	Hartsville	coal	27.0	Displace
CP&L	Foster Wheeler	Charleston	refuse	8.7	Purchase
Duke	Aquenergy	Greer	hydro	0.42	Purchase
Duke	Aquenergy	Piedmont	hydro	1.05	Purchase
Duke	Aquenergy	Cateechee	hydro	0.45	Purchase
Duke	Aquenergy	Cateechee	hydro	0.5	Purchase
Duke	Aquenergy	Ware Shoals	hydro	6.3	Purchase
Duke	Pacolet River Power	Clifton	hydro	0.8	Purchase
Duke	Bluestone Energy	Clifton	hydro	1.25	Purchase
Duke	Bob Jones University	Greenville	diesel	4.55	Purchase (2MW) & Displace (2.55MW)
Duke	Pelzer Hydro Co.	Pelzer	hydro	2.02	Purchase
Duke	Pelzer Hydro Co.	Williamston	hydro	3.3	Purchase
Duke	BMW	Greer	gas	5.0	Purchase
Duke	Cherokee Cty. Cogen. Corp.	Gaffney	gas	95.0 (Proj.)	Purchase
SCE&G &	Union Camp Corp.	Eastover	wood chips	97.5	Purchase (33MW) Displace (62.5MW)
	Plant		Fuel	Capacity	Purchase/

Utility	Owner	Location	Type	(MW)	Displace
SCE&G	Westvaco Corporation	North Charleston	wood chips	48.0	Displace
SCE&G	SRP/ Westinghouse	Aiken	coal	65.0	Displace
Lockhart	Milliken & Co.	Pacolet	hydro	0.8	Purchase

APPENDIX H
Compiled Numerical Data on Demand-Side Activities

Here are the figures on demand-side management programs in South Carolina for 1995, compiled from the utilities' reports to the Energy Office and/or to the Public Service Commission.

Electricity

System Totals by Cooperative

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Aiken Electric Cooperative, Inc.										
Savings From Peak (MW)	3.6	3.8	4.4	6.1	6.5	5.7	6.0	6.3	6.6	6.9
As Percentage of System Peak (%)	3.2	3.3	3.9	4.5	4.3	3.8	3.9	3.9	4.0	4.0
Energy Savings (MWh)	501.0	787.5	1066.5	1311.0	1453.5	1879.5	2163.0	2458.5	2764.5	3070.5
As Percentage of Total System Energy	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4
Berkeley Electric Cooperative, Inc.										
Savings From Peak (MW)	7.8	8.9	9.9	12.9	13.8	13.8	15.0	16.0	17.0	18.0
As Percentage of System Peak (%)	3.6	4.1	4.3	4.6	4.8	5.4	5.7	5.9	6.2	6.4
Energy Savings (MWh)	1810.5	2518.5	3403.5	4450.5	5145.0	6652.5	7656.0	8700.0	9784.5	10869.0
As Percentage of Total System Energy	0.2	0.3	0.4	0.5	0.5	0.7	0.7	0.8	0.9	1.0
Black River Electric Cooperative, Inc.										
Savings From Peak (MW)	2.6	2.9	3.5	4.2	5.0	4.9	5.1	5.2	5.3	5.4
As Percentage of System Peak (%)	3.1	3.3	3.8	3.5	4.3	4.5	4.5	4.5	4.4	4.4
Energy Savings (MWh)	813.0	1170.0	1500.0	1893.0	2358.0	2497.5	2610.0	2722.5	2835.0	2947.5
As Percentage of Total System Energy	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Coastal Electric Cooperative, Inc.										
Savings From Peak (MW)	0.8	0.8	0.8	0.8	0.9	1.0	1.1	1.1	1.1	1.2
As Percentage of System Peak (%)	1.4	3.0	3.0	2.5	2.7	3.5	3.5	3.5	3.5	3.4
Energy Savings (MWh)	57.0	55.5	73.5	121.5	159.0	205.5	237.0	268.5	303.0	336.0
As Percentage of Total System Energy	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Edisto Electric Cooperative, Inc.										
Savings From Peak (MW)	0.8	0.9	1.0	1.7	1.7	1.3	1.4	1.5	1.6	1.7
As Percentage of System Peak (%)	1.7	1.9	2.0	2.8	2.8	2.4	2.5	2.6	2.8	2.9
Energy Savings (MWh)	304.5	421.5	534.0	645.0	687.0	888.0	1023.0	1162.5	1306.5	1452.0
As Percentage of Total System Energy	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6
Fairfield Electric Cooperative, Inc.										
Savings From Peak (MW)	1.7	1.9	2.0	2.9	3.2	2.8	2.9	3.1	3.2	3.4
As Percentage of System Peak (%)	2.8	2.8	2.6	3.0	3.0	2.6	2.9	3.0	3.0	3.4
Energy Savings (MWh)	255.0	342.0	426.0	576.0	673.5	871.5	1002.0	1138.5	1281.0	1423.5
As Percentage of Total System Energy	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3

Electricity
System Totals by Cooperative

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Horry Electric Cooperative, Inc.										
Savings From Peak (MW)	4.1	4.6	5.2	6.5	7.1	7.3	7.9	8.5	9.1	9.6
As Percentage of System Peak (%)	3.8	4.1	4.4	4.2	4.7	5.0	5.3	5.5	5.7	6.0
Energy Savings (MWh)	1240.5	1752.0	2301.0	3103.5	3576.0	4623.0	5322.0	6048.0	6801.0	7554.0
As Percentage of Total System Energy	0.3	0.4	0.5	0.7	0.7	0.9	1.0	1.1	1.2	1.3
Lynches River Electric Cooperative, Inc.										
Savings From Peak (MW)	1.9	2.0	2.3	3.3	3.6	3.0	3.2	3.4	3.6	3.8
As Percentage of System Peak (%)	3.8	3.9	4.4	5.8	5.9	9.2	5.0	5.1	5.2	5.3
Energy Savings (MWh)	399.0	496.5	621.0	771.0	871.5	1126.5	1297.5	1474.5	1657.5	1840.5
As Percentage of Total System Energy	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7
Marlboro Electric Cooperative, Inc.										
Savings From Peak (MW)	0.4	0.4	0.5	0.8	0.9	0.6	0.7	0.7	0.7	0.8
As Percentage of System Peak (%)	0.7	0.7	0.7	1.2	0.9	0.6	0.7	0.7	0.7	0.7
Energy Savings (MWh)	84.0	120.0	159.0	184.5	198.0	256.5	294.0	334.5	376.5	418.5
As Percentage of Total System Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Mid-Carolina Electric Cooperative, Inc.										
Savings From Peak (MW)	4.9	5.7	6.4	8.6	9.3	8.9	9.6	10.2	10.9	11.5
As Percentage of System Peak (%)	3.9	4.1	4.2	4.8	5.1	5.1	5.3	5.5	5.6	5.8
Energy Savings (MWh)	1176.0	1708.5	2358.0	3214.5	3706.5	4792.5	5515.5	6268.5	7048.5	7830.0
As Percentage of Total System Energy	0.2	0.3	0.4	0.5	0.6	0.8	0.8	0.9	1.0	1.1
Newberry Electric Cooperative, Inc.										
Savings From Peak (MW)	1.1	1.1	1.2	1.5	1.6	1.3	1.4	1.4	1.4	1.4
As Percentage of System Peak (%)	2.8	3.2	3.2	3.8	4.3	3.5	3.4	3.4	3.4	3.4
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palmetto Electric Cooperative, Inc.										
Savings From Peak (MW)	5.6	6.2	6.8	8.8	9.8	7.5	7.9	8.3	8.6	8.9
As Percentage of System Peak (%)	3.2	3.5	3.4	3.8	4.6	3.4	3.4	3.5	3.5	3.6
Energy Savings (MWh)	319.5	415.5	558.0	757.5	948.0	1225.5	1411.5	1603.5	1803.0	2002.5
As Percentage of Total System Energy	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2

Electricity

System Totals by Cooperative

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pee Dee Electric Cooperative, Inc.										
Savings From Peak (MW)	3.0	3.0	3.1	3.2	3.3	3.7	3.8	4.0	4.1	4.3
As Percentage of System Peak (%)	2.7	2.7	2.6	2.3	2.7	3.0	3.0	3.0	3.1	3.2
Energy Savings (MWh)	459.0	496.5	562.5	828.0	960.0	1240.5	1428.0	1623.0	1825.5	2028.0
As Percentage of Total System Energy	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3
Santee Electric Cooperative, Inc.										
Savings From Peak (MW)	4.4	4.5	4.7	2.5	2.6	5.3	5.5	5.6	5.8	6.0
As Percentage of System Peak (%)	3.5	3.4	3.6	1.8	1.7	3.2	3.2	3.1	3.1	3.0
Energy Savings (MWh)	288.0	438.0	646.5	912.0	1078.5	1395.0	1605.0	1824.0	2050.5	278.5
As Percentage of Total System Energy	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.0
Tri-County Electric Cooperative, Inc.										
Savings From Peak (MW)	1.5	1.5	1.6	1.5	1.5	1.9	2.0	2.0	2.1	2.2
As Percentage of System Peak (%)	3.5	3.3	3.3	2.5	3.1	3.7	3.8	3.8	3.8	3.9
Energy Savings (MWh)	130.5	198.0	283.5	408.0	457.5	591.0	681.0	774.0	897.0	966.0
As Percentage of Total System Energy	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Central Electric Power Cooperative System *(includes the 15 preceding members)*										
Savings From Peak (MW)	44.1	48.3	53.5	65.3	70.8	68.9	73.3	77.3	81.1	85.0
As Percentage of System Peak (%)	3.1	3.4	3.5	3.6	3.9	3.9	4.0	4.1	4.2	4.3
Energy Savings (MWh)	7837.5	10920.0	14493.0	19176.0	22272.0	28245.0	32245.5	36400.5	40734.0	43016.5
As Percentage of Total System Energy	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.5
Saluda River Electric Cooperative System										
Savings From Peak (MW)	19.0	21.1	25.9	27.9	30.0	32.5	34.5	36.4	38.0	39.4
As Percentage of System Peak (%)	4.9	5.3	6.0	6.7	6.4	6.6	6.5	6.6	6.6	6.5
Energy Savings (MWh)	7934.5	8793.9	10863.2	11703.3	12543.4	13445.5	14302.6	15111.7	15840.2	16457.8
As Percentage of Total System Energy	0.5	0.5	0.6	0.7	0.6	0.7	0.6	0.7	0.7	0.7
Total Cooperatives										
Savings From Peak (MW)	63.1	69.3	79.4	93.2	100.7	101.4	107.8	113.7	119.1	124.4
As Percentage of System Peak (%)	3.5	3.8	4.1	4.2	4.4	4.5	4.6	4.7	4.7	4.8
Energy Savings (MWh)	15772.0	19713.9	25356.2	30879.3	34815.4	41690.5	46548.1	51512.2	56574.2	59474.3
As Percentage of Total System Energy	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6

Electricity

System Totals by Muncipalities

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bamberg Board of Public Works										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
City of Abbeville										
Savings From Peak (MW)	0.0	0.0	0.1	0.2	0.4	0.5	0.5	0.5	0.5	0.5
As Percentage of System Peak (%)	0.0	0.0	0.5	1.4	3.0	3.3	3.3	3.3	3.3	3.3
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
City of Bennettsville										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	1.9	2.0	2.1	2.2	2.3
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	7.2	7.4	7.6	7.7	7.9
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
City of Newberry										
Savings From Peak (MW)	0.0	0.0	0.9	1.2	2.0	2.1	2.1	2.1	2.1	2.1
As Percentage of System Peak (%)	0.0	0.0	3.0	3.8	6.3	6.2	6.1	6.1	6.1	6.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
City of Rock Hill										
Savings From Peak (MW)	5.2	9.3	11.1	12.6	12.9	13.7	14.5	15.3	16.1	16.8
As Percentage of System Peak (%)	4.7	8.5	9.6	11.4	10.2	10.4	10.6	10.7	10.9	10.9
Energy Savings (MWh)	258.8	441.6	758.2	809.1	674.3	843.0	889.0	935.0	981.0	1036.0
As Percentage of Total System Energy (%)	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2
City of Union										
Savings From Peak (MW)	0.0	0.0	0.3	0.7	0.8	0.8	0.8	0.9	0.9	0.9
As Percentage of System Peak (%)	0.0	0.0	1.0	2.4	2.4	2.6	2.6	2.7	2.6	2.6
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Electricity
System Totals by Muncipalities

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Clinton Public Works										
Savings From Peak (MW)	0.0	0.0	0.2	0.5	1.2	1.3	1.3	1.3	1.4	1.4
As Percentage of System Peak (%)	0.0	0.0	0.7	1.8	4.7	4.1	4.1	4.1	4.1	4.1
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Easley Combined Utility System										
Savings From Peak (MW)	0.9	1.0	1.5	3.4	4.4	4.9	5.0	5.1	5.3	5.4
As Percentage of System Peak (%)	2.0	2.1	3.1	7.2	9.2	10.0	9.8	9.8	9.8	9.7
Energy Savings (MWh)	94.0	97.0	105.0	210.0	220.0	225.0	230.0	235.0	240.0	245.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gaffney Board of Public Works										
Savings From Peak (MW)	0.0	1.4	6.9	7.2	12.5	12.6	12.7	12.8	12.8	12.9
As Percentage of System Peak (%)	0.0	4.2	18.9	20.9	30.3	29.5	28.7	28.0	26.8	26.4
Energy Savings (MWh)	0.0	0.0	692.8	866.5	741.5	747.3	750.8	754.4	754.4	754.4
As Percentage of Total System Energy (%)	0.0	0.0	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3
Georgetown Light & Water Department										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greenwood Commission of Public Works										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	4.9	4.8	4.8	4.9	4.9	5.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	8.4	8.7	8.6	8.7	8.6	8.8
Energy Savings (MWh)	0.0	0.0	0.0	0.0	26.0	27.0	27.3	27.5	27.8	30.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greer Commission of Public Works										
Savings From Peak (MW)	0.6	1.2	1.5	1.9	2.3	2.7	2.9	3.1	3.2	3.3
As Percentage of System Peak (%)	2.3	4.4	5.4	6.5	6.7	6.7	7.4	7.4	7.4	7.4
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Electricity
System Totals by Muncipalities

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Laurens CPW										
Savings From Peak (MW)	0.0	0.0	0.03	0.1	0.2	0.3	0.3	0.3	0.3	0.3
As Percentage of System Peak (%)	0.0	0.0	0.1	0.6	1.0	1.3	1.3	1.3	1.3	1.3
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orangeburg Department of Public Utilities										
Savings From Peak (MW)	1.1	2.8	3.6	3.6	4.2	4.3	4.3	4.4	4.5	4.5
As Percentage of System Peak (%)	0.7	1.9	2.3	2.4	2.6	2.6	2.5	2.5	2.5	2.4
Energy Savings (MWh)	0.0	500.0	600.0	600.0	650.0	650.0	650.0	700.0	700.0	700.0
As Percentage of Total System Energy (%)	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Seneca Light and Water Plant										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Town of Due West										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Town of Prosperity										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Town of Winnsboro										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Electricity

System Totals by Muncipalities

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Westminster Commission of Public Works										
Savings From Peak (MW)	0.0	0.0	0.01	0.1	0.2	0.3	0.3	0.3	0.3	0.3
As Percentage of System Peak (%)	0.0	0.0	0.1	1.9	3.6	4.9	4.9	4.9	4.9	4.9
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Municipalities										
Savings From Peak (MW)	7.8	15.6	26.1	31.5	46.1	50.0	51.6	53.1	54.5	55.8
As Percentage of System Peak (%)	1.2	2.4	3.8	4.7	6.3	6.7	6.8	6.8	6.8	6.8
Energy Savings (MWh)	352.8	1038.6	2156.0	2485.6	2311.8	2492.3	2547.1	2651.9	2703.1	2765.4
As Percentage of Total System Energy (%)	0.01	0.03	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Electricity

System Totals by Generating Utility

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Carolina Power & Light										
Savings From Peak (MW)	112.8	116.7	122.6	149.1	166.0	186.4	185.3	189.0	192.6	195.8
As Percentage of System Peak	10.1	10.0	9.8	13.0	13.0	15.3	14.7	14.5	14.4	14.3
Energy Savings (MWh)	184000.0	190500.0	197800.0	203600.0	198543.0	211950.0	220024.0	229992.0	240881.0	250414.0
As Percentage of Total System Energy	3.2	3.2	3.1	3.2	3.0	0.3	3.2	3.3	3.3	3.4
Duke Power Company										
Savings From Peak (MW)	301.5	373.5	391.1	382.8	315.9	324.3	347.7	376.8	414.0	453.8
As Percentage of System Peak	8.8	10.9	10.7	10.9	8.2	8.3	8.8	9.4	10.1	10.9
Energy Savings (MWh)	1495.0	4542.0	9029.0	19689.0	30358.0	58311.3	114709.2	171672.4	231847.2	302503.4
As Percentage of Total System Energy	0.01	0.02	0.05	0.1	0.1	0.3	0.5	0.8	1.0	1.3
Santee Cooper										
Savings From Peak (MW)	4.7	6.1	7.9	9.9	11.8	13.9	16.1	18.4	20.8	23.2
As Percentage of System Peak	0.4	0.5	0.7	1.0	1.3	1.3	1.5	1.7	1.9	2.4
Energy Savings (MWh)	4426.0	5572.3	6984.9	8617.5	10272.3	11968.3	13713.4	15507.4	17357.0	19262.6
As Percentage of Total System Energy	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3
SC Electric & Gas Company										
Savings From Peak (MW)	16.5	32.0	37.6	49.4	35.4	22.6	12.5	12.5	12.5	12.7
As Percentage of System Peak	0.5	1.0	1.1	1.6	1.0	0.7	0.4	0.4	0.4	0.4
Energy Savings (MWh)	24416.9	27062.4	31633.1	33502.8	29880.9	22076.6	19651.9	19232.0	18817.2	19032.5
As Percentage of Total System Energy	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Lockhart Power Company										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Electricity

System Totals by Supplier

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Cooperatives										
Savings From Peak (MW)	63.1	69.3	79.4	93.2	100.7	101.4	107.8	113.7	119.1	124.4
As Percentage of System Peak (%)	3.5	3.8	4.1	4.2	4.4	4.5	4.6	4.7	4.7	4.8
Energy Savings (MWh)	15772.0	19713.9	25356.2	30879.3	34815.4	41690.5	46548.1	51512.2	56574.2	59474.3
As Percentage of Total System Energy (%)	1.2	1.3	1.4	1.6	1.6	1.7	1.8	1.8	2	1.9
Total Municipalities										
Savings From Peak (MW)	7.8	15.6	26.1	31.5	46.1	50.0	51.6	53.1	54.5	55.8
As Percentage of System Peak (%)	0.01	0.02	0.04	0.05	0.1	0.1	0.1	0.1	0.1	0.1
Energy Savings (MWh)	352.8	1038.6	2156.0	2485.6	2311.8	2492.3	2547.1	2651.9	2703.1	2765.4
As Percentage of Total System Energy (%)	0.01	0.03	0.07	0.08	0.07	0.07	0.07	0.07	0.08	0.07
Carolina Power & Light										
Savings From Peak (MW)	112.8	116.7	122.6	149.1	166.0	186.4	185.3	189.0	192.6	195.8
As Percentage of System Peak	10.1	10.0	9.8	13.0	13.0	15.3	14.7	14.5	14.4	14.3
Energy Savings (MWh)	184000.0	190500.0	197800.0	203600.0	198543.0	211950.0	220024.0	229992.0	240881.0	250414.0
As Percentage of Total System Energy	3.2	3.2	3.1	3.2	3.0	0.3	3.2	3.3	3.3	3.4
Duke Power Company										
Savings From Peak (MW)	301.5	373.5	391.1	382.8	315.9	324.3	347.7	376.8	414.0	453.8
As Percentage of System Peak	8.8	10.9	10.7	10.9	8.2	8.3	8.8	9.4	10.1	10.9
Energy Savings (MWh)	1495.0	4542.0	9029.0	19689.0	30358.0	58311.3	114709.2	171672.4	231847.2	302503.4
As Percentage of Total System Energy	0.01	0.02	0.05	0.1	0.1	0.3	0.5	0.8	1.0	1.3
Santee Cooper										
Savings From Peak (MW)	4.7	6.1	7.9	9.9	11.8	13.9	16.1	18.4	20.8	23.2
As Percentage of System Peak	0.4	0.5	0.7	1.0	1.3	1.3	1.5	1.7	1.9	2.4
Energy Savings (MWh)	4426.0	5572.3	6984.9	8617.5	10272.3	11968.3	13713.4	15507.4	17357.0	19262.6
As Percentage of Total System Energy	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3

Electricity

System Totals by Supplier

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SC Electric & Gas Company										
Savings From Peak (MW)	16.5	32.0	37.6	49.4	35.4	22.6	12.5	12.5	12.5	12.7
As Percentage of System Peak	0.5	1.0	1.1	1.6	1.0	0.7	0.4	0.4	0.4	0.4
Energy Savings (MWh)	24416.9	27062.4	31633.1	33502.8	29880.9	22076.6	19651.9	19232.0	18817.2	19032.5
As Percentage of Total System Energy	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Lockhart Power Company										
Savings From Peak (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of System Peak	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Savings (MWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
As Percentage of Total System Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Electricity

Qualified Producers in South Carolina

Cogeneration and Renewable Fuels	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Energy (MWh)	491,923.9	759,414.5	744,795.4	738,479.3	747,736.1	723,885.8	724,219.3	1,009,395.0	1,294,570.6	1,294,728.3

APPENDIX I
Form to Report Demand-Side Activities

The following is the form sent to the utilities by the South Carolina Energy Office to obtain information on demand-side activities.

Reporting Demand-Side Activities

to the

South Carolina Energy Office

[Pursuant to Section 58-37-30(B) of South Carolina Code]

QUANTITATIVE DATA:

1. Please use the attached forms to provide quantitative data on demand-side activities. The reporting period includes actual data for 1991 through 1995 and projected values for 1996 through 2000.

2. If you have no demand-side management activities, please indicate this on the forms and return. We still need data on your customer base and system size.

NOTE: The quantitative data may be submitted as a LOTUS 1-2-3 or Microsoft EXCEL spreadsheet on a DOS-formatted diskette.

QUALITATIVE DATA:

1. Provide summary descriptions of each demand-side activity identified in this year's report.

2. Please attach any additional explanatory information you want included in this report.

If you would like a copy of the 1996 report, *The Status of Utility Demand-Side Management Activities in South Carolina for 1996*, or a copy of the data you filed last year, please contact Kate Billing at the South Carolina Energy Office. Call 1-800-851-8899, or (803) 737-8030.

Demand-Side Activities Form 1

Data for Each Demand-Side Activity

Quantitative Data-- Name: ____________________________________

Provide system summary totals for 12-month periods (on a calendar year basis)

* using actual, or estimated actual, annual values for each of the previous 5 calendar years, January 1991 through December 1995.
* using projected annual values (using most probable economic assumptions with normal weather) for each of the next 5 calendar years, January 1996 through December 2000.
* and providing the following data:

DATA DESCRIPTION		ACTUAL 1991	1992	1993	1994	1995	PROJECTED 1996	1997	1998	1999	2000
DEMAND SIDE ACTIVITY NAME:	(1) Total kW saved, or avoided, from annual peak for this demand-side activity.										
	(2) Total kWh saved, or avoided, from overall annual usage for this demand-side activity.										
CUSTOMER CLASS:	(3) Proportion of total customers in class (%) for whom this demand-side activity is available.										
	(4) Number of customers participating in this demand-side activity.										
DEMAND SIDE ACTIVITY NAME:	(1) Total kW saved, or avoided, from annual peak for this demand-side activity.										
	(2)Total kWh saved, or avoided, from overall annual usage for this demand-side activity.										
CUSTOMER CLASS:	(3) Proportion of total customers in class (%) for whom this demand-side activity is available.										
	(4) Number of customers participating in this demand side-activity.										

Demand-Side Activities Form 2

Overall System Data

Quantitative Data-- Name: ______________________________________

Provide system summary totals for 12-month periods (on a calendar year basis)

* using actual, or estimated actual, annual values for each of the previous 5 calendar years, January 1994 through December 1998.
* using projected annual values (using most probable economic assumptions with normal weather) for each of the next 5 calendar years, January 1999 through December 2003.
* and providing the following data:

DATA DESCRIPTION	ACTUAL					PROJECTED				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
(5) Annual MW peak system demand, excluding sales for re-sale (for projections, show expected values already reduced by demand-side effects).										
(6) Total annual system MWh, excluding sales for re-sale (for projections, show expected values already reduced by demand-side effects).										
(7) Total miles of distribution line in service area (in miles).										
(8) Total number of customers (all classes).										
(9) Total generation (kWh) supplied from qualified producers (IPP, cogeneration) or avoided due to their operation (NOTE: attach a list showing the identity and generating capacity of each qualified producer in the system).										

Natural Gas Demand-Side Activities Form 1

Data for Each Demand-Side Activity

Quantitative Data-- Name: ______________________________

Provide system summary totals for 12-month periods (on a calendar year basis)

* using actual, or estimated actual, annual values for each of the previous 5 calendar years, January 1991 through December 1995.

* using projected annual values (using most probable economic assumptions with normal weather) for each of the next 5 calendar years, January 1996 through December 2000

* and providing the following data:

DATA DESCRIPTION		ACTUAL 1991	1992	1993	1994	1995	PROJECTED 1996	1997	1998	1999	2000
DEMAND SIDE ACTIVITY NAME:	(1) Total therms or dekatherms saved, or avoided, from annual peak for this demand-side activity.										
	(2) Total therms or dekatherms saved, or avoided, from overall annual usage for this demand-side activity.										
CUSTOMER CLASS:	(3) Proportion of total customers in class (%) for whom this demand-side activity is available.										
	(4) Number of customers participating in this demand-side activity.										
DEMAND SIDE ACTIVITY NAME:	(1) Total therms or dekatherms saved, or avoided, from annual peak for this demand-side activity.										
	(2) Total therms or dekatherms saved, or avoided, from overall annual usage for this demand-side activity.										
CUSTOMER CLASS:	(3) Proportion of total customers in class (%) for whom this demand-side activity is available.										
	(4) Number of customers participating in this demand side-activity.										

Natural Gas Demand-Side Activities

Form 2

Overall System Data

Quantitative Data--

Name: ______________________________________

Provide system summary totals for 12-month periods (on a calendar year basis)

* using actual, or estimated actual, annual values for each of the previous 5 calendar years, January 1994 through December 1998.

* using projected annual values (using most probable economic assumptions with normal weather) for each of the next 5 calendar years, January 1999 through December 2003

* and providing the following data:

	ACTUAL					PROJECTED				
DATA DESCRIPTION	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
(5) Annual DT peak system demand, excluding sales for re-sale (for projections, show expected values already reduced by demand-side effects).										
(6) Total annual system DT, excluding sales for re-sale (for projections, show expected values already reduced by demand-side effects).										
(7) Total miles of distribution line in service area (in miles).										
(8) Total number of customers (all classes).										

APPENDIX J

Utility Addenda

The utilities requested the opportunity to append additional comments regarding trends in demand-side management, particularly with regard to its future feasibility or unfeasibility. These comments are included here.

South Carolina Electric & Gas Company
Columbia, SC 29218
(803) 748-3722

Addendum to 1995 Demand-Side Management Report

This addendum is in response to a letter sent to South Carolina Electric & Gas from the South Carolina Energy Office dated October 10, 1996. The Energy Office requested that SCE&G submit an addendum that answers a series of questions outlined at a previous Demand-Side Management meeting.

1. Any discontinued or modified activities and why the change was made?

The following changes were made in calendar year 1996.

Program	Modification/Termination	Reason
1.) Commercial thermal storage	Change to rebate structure	We removed negative impacts to ratepayers while maintaining significant incentives
2.) High efficiency motors	Terminate	Technology increased rapidly, which reduced the price of high efficiency motors while making them so widely available that they are often a manufacturer's standard motor.
3.) Adjustable speed drives	Terminate	Technology increased rapidly, which resulted in a short payback for customers even without a rebate
4.) Gas air conditioning	Terminate	This electric program was an inefficient duplication of gas sales efforts.
5.) Commercial HVAC	Change to education only with no incentives	The customer's payback was sufficiently short to motivate selection of the technology even without a rebate, but the customer sometimes still needs to be educated about his options
6.) High efficiency chillers	Change to education only with no incentives	The customer's payback was sufficiently short to motivate selection of the technology even without a rebate, but the customer sometimes still needs to be educated about his options
7.) Residential thermal storage	Terminate	Prices remained prohibitively high
8.) Residential heat pump water heaters	Terminate	The technology was high priced and was still viewed by dealers as experimental
9.) Commercial heat pump water heater (& pool heater)	Change to education only with no incentives	Suppliers remained reluctant to adopt the technology
10.) The Innovation Station and Energy Information Center	Closing offices	In 1996, South Carolina Electric & Gas Company (SCE&G) decided to close its Innovation Station in Columbia and its energy Information Center in Charleston. These two facilities served their purpose in educating energy consumers, but decreases in traffic indicated that new methods were needed to provide these services.

2. Any new activities?

SCANA Home Solutions Line

The SCANA Home Solutions Line enables the customer to utilize the Internet or a telephone to obtain energy information on a wide variety of topics.

Specifically tailored to meet customer needs, information in available about the home – including lighting; heating and air conditioning; water heating; insulation and outdoor living. New construction advice, safety tips, rate information and an abundance of energy-saving ideas are included. IN total, customers have access to about eight hours of energy information on the Internet and three hours' worth on the phone line.

In the near future, the site will also provide links to additional energy information sources including EPRI, the Gas Research Institute and the South Carolina Electric Heat Pump Association. The Internet address for the SCANA Home Solutions Line is accessed through the SCANA home page at http://www.scana.com/sce&g/home.

Customers who do not have a computer at home can connect with the SCANA Home Solutions line over the telephone. They simply call the toll free phone number: 1-888-722-6254 (SCANALINE) and choose a recorded message from a menu system. Callers are offered choices that address more than 40 energy topics. A flow chart of the SCANA Home Solutions line is also included with this addendum.

3. The utility's DSM Objective?

The objective of SCE&G's DSM, in conjunction with supply-side alternatives, is to lower the cost to ratepayers through efficient utilization of resources. DSM efforts are designed to help our customers use energy wisely and manage peak demand. Our portfolio promotes energy efficiency to residential, commercial and industrial customers through incentives, financing, education and comprehensive rate options.

4. How DSM fits into the Integrated Resource Planning Process (for utilities which prepare IRPs)?

The goal of the integrated resource planning process is to meet the forecasted energy and demand requirements of our customers with an optimal mix of demand-side options and supply-side resources. The process starts by updating the demand and energy forecasts. This includes a new economic forecast form Data Resources, Inc. (DRI), new econometric equations, and revised system impacts for existing DSM Programs.

With estimates of avoided costs, the company evaluates the benefit and costs of various DSM programs. Once a new portfolio of DSM programs have been developed, then a new forecast of demand and energy is made and new supply plans are constructed.

5. Changes that have affected DSM since the law was passed, and what those effects have been?

The electric utility environment is changing for managers, regulators, ratepayers and stockholders. Competition is forcing a paradigm shift. Economic efficiency is becoming a necessary precondition for and demand-side management (DSM) program. This is a dramatic move away form, or at least beyond, the previous view shared by all parties that sometimes considered it prudent for a utility to take DSM actions for societal reasons alone. The result was higher rates. A study by Oak Ridge National Laboratory concluded that DSM programs often increase electricity prices. "Although such programs may reduce overall electric bills, they typically increase prices slightly over the lifetimes of the measures installed."[1]

In a competitive marketplace, anything which raises costs, applies upward pressure on rates, or creates a cross-subsidization carries risk. If one class of customers receives a subsidy form another class, the benefit probably won't be enough to offset the loss if the latter class disappears from the system.

Throughout consideration of these issues, SCE&G has sought a balanced approach. We have carefully weighed downward pressure on rates vis-á-vis strategic and societal implications. We have changed, eliminated or replaced many conservation programs that were reported in the last IRP three years ago because of their impact on ratepayers. However, we have also kept some that fail the Ratepayer Impact Measure (RIM) test, an indication of upward pressure on rates. We decided to so because the cost to society of withdrawing them is too high. Even in these cases, we have taken precautions to minimize the negatives effect on ratepayers.

Looking at the overall plan, we have established a balanced portfolio that will reduce the impact on rates without abandoning the societal benefits we have pursued for years. We believe we have found the right combinations for now, and we have the tools in place to adapt to the futre.

[1] "Price Impacts Of Electric Utility DSM Programs", by Eric Hirst and Stan Hadley, Oak Ridge National Laboratory, ORNL/CON-402, Nov. 1994.

Avoided capacity costs have fallen more that 60% in the last three years. Advances in technology and increased competition have caused price cutting by the suppliers of generating equipment. Meanwhile, the availability of power off-system means that SCE&G can reduce its own on-system reserve margins, further lowering the value of avoided capacity. Finally, the only deferrable generation in the near-term for SCE&G comes from gas turbines and combined cycle units, both of which are relatively low-cost capacity.

For several years, SCE&G has kept careful records of participation in programs. This historical data is providing insight into the effectiveness and costs of demand-side management options. Management uses this information when allocating resources. In addition, evaluation of on-going programs is based on actual cost data.

Perhaps the most significant impact on the evaluation process has been the emergence of competition in the utility industry. In that environment, it is imperative that we make sure that demand-side management programs do not result in cross-subsidies or higher rates. "[E]ven if cost recovery and lost revenue issues are addressed, DSM-related rate increases may create other problems in competitive markets, possibly driving away incremental customers or sales, with consequent loss of contributions to fixed costs and profits."[2] On the other hand, any DSM program that applies downward pressure on rates becomes increasingly valuable.

The end result of these effects are that some DSM programs that were useful at one time have now outlived their usefulness due to changing economic conditions, buying behavior, customer education on energy issues, and advances in technology.

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[2] Demand-Side Management Incentive Regulation by Michael Reid at Barakat & Chamberlin, Inc., Edison Electric Institute, 1991.

ADDENDUM
TO
1995 DEMAND-SIDE MANAGEMENT REPORT
FOR
SOUTH CAROLINA PUBLIC SERVICE AUTHORITY
(SANTEE COOPER)

1) Any discontinued or modified activities and why the change was made.

Response: No change.

2) Any new activities.

Response: None.

3) The utility's DSM objective.

Response: Santee Cooper has offered innovative rates and customer programs since the late 1970's and plans to continue these efforts where cost effective.

4) How DSM fits into the Integrated Resource Planning Process (for utilities which prepare IRP's).

Response: The DSM impacts of existing programs are included in the Load Forecast.

5) Changes that have affected DSM since the law was passed, and what those effects have been.

Response: The availability of generation capacity from marketers and wholesale suppliers has reduced the benefit of DSM by lowering the cost and need for future capacity.

Central Electric Power Cooperative, Inc.

ADDENDUM

1. None of the DSM Programs reported in the filing of May 15, 1996 have been modified or changed which would in any way affect the program information provided.

2. There have been no new programs initiated.

3. The objective of all DSM Programs currently in effect is to lower the ultimate cost of power to the member/owners of the electric cooperatives of the Central Electric Power system.

4. By statute, neither Central nor its member cooperatives are required to file an IRP with any state authority, but are included in the IRP filled by the South Carolina Public Service Authority.

5. Because of the manner in which Central's DSM Programs are designed and implemented, there have been no regulatory or market changes which have impacted the programs.

South Carolina

Demand-Side Management Report

1996

CAROLINA POWER & LIGHT

DSM objectives change over time in response to market conditions, resource requirements and economic conditions. CP&L has been very successful in meeting appropriate DSM objectives in pace and cost. It is composed of a mix of load shape objectives and programs in residential, commercial and industrial sectors. The load shape mix consists of strategic conservation, load shifting, peak clipping, valley filling and strategic load growth. The pace can be adjusted up or down depending on progress to date, customer acceptance, anticipated program enhancements, expected business conditions and market transformation progress.

The major elements of the DSM and IRP process are objectives and strategy, program development, economic analysis, customer acceptance, market potential, monitoring and market transformation. Individual programs that comprise the DSM portfolio are developed through a process that allows for systematic development, they become more specifically defined, particularly in the areas of target market, qualifications, marketing approach, program cost and expected results. Key questions are investigated, including the economic costs and benefits of the program, customer acceptance and market potential. With regard to the economic analyses of the costs and benefits of DSM, CP&L seeks to develop and promote cost-effective programs which tend to improve system load factor, increase the utilization and efficiency of existing capacity, minimize the need for future generating capacity, provide downward pressure on the level and frequency of future rate increases, ensure customer satisfaction, and support continued sound economic growth within its service area. The cost effectiveness of a DSM program from the point of view of CP&L's body of customers is the primary economic criteria for determining the viability of subsequent programs. As a result, only programs that are cost beneficial are considered for development and implementation. In addition to the cost-effectiveness consideration, we must also take into account other factors not explicitly identified in cost-effectiveness evaluations of DSM. Factors such as market potential, technical feasibility, reliability, budget constraints, the urgency of load management, customer satisfaction and regulation must also be considered.

Customer acceptance is a vital factor in the success of CP&L's DSM efforts. Communication with our customers provides a vehicle for encouraging and measuring customer acceptance. CP&L utilizes varying communication forums to interact with customers. The company's advertising and promotional materials educate customers and encourage program participation. CP&L also provides ongoing opportunities for communication with customers and continually seeks input from a variety of perspectives regarding DSM programs. Market research is conducted to gather information and increase understanding of CP&L's DSM programs and associated advertising. This research provides valuable insight into customer needs which are factored into our DSM strategy and programs.

Significant market transformation has occurred over the past several years. Governmental policies and DSM programs have resulted in a positive, lasting change in the market for energy-efficient technologies and services, as evidenced by tighter, but cost-effective, building-code requirements and the increased availability and lower cost of high efficiency products, e.g., high SEER heat pumps. Market transformation, as well as reductions in marginal fuel and generation capital costs, has reduced both the effectiveness of and the need for utility DSM programs.

It is impossible, at this time, to predict specific impacts of retail wheeling – if it becomes reality in the future – on CP&L's DSM activities. In general, it should be expected that implementation of retail wheeling would result in utilities maintaining only those DSM programs which are economic. CP&L already bases its implementation or revision of DSM programs on the economic viability of the program or program revision. Also, implementation of retail wheeling may result in the reallocation of the costs of DSM programs to only those customers remaining on the utility's system which may strongly affect the residential customers.